tained by the latter, he finds that in the bark of the bamboo and the epidermis of straw the silica incrusting these tissues is not crystallized, but, on the contrary, exhibits, both before and after incineration, the most beautiful and elaborate organization, consisting of an arranged series of cells and tubes, and differing in its character in different species of the same tribe, and in different parts of the same plant.

The observations of Mr. Golding Bird, contained in the 14th number of the Magazine of Natural History, New Series, are then referred to; and the author states in confirmation, that, by employing caustic potash, the siliceous columns may be removed from the leaf of a stalk of wheat, while the spiral vessels and ducts, which form the principal ribs of the leaf, as well as the apparently metallic cups which are arranged on its surface, remain undisturbed. He proposes, therefore, to substitute, in the description of vegetable tissues, the term *skeleton*, instead of that of *bases*, whether saline or siliceous, of those tissues.

March 15, 1838.

FRANCIS BAILY, Esq., V.P. and Treas., in the Chair.

Captain Thomas Best Jervis, E.I.C.S., and Travers Twiss, Esq., were elected Fellows of the Society.

The reading of a paper, entitled, "Experimental Researches in Electricity," Thirteenth Series, by Michael Faraday, Esq., D.C.L., F.R.S., &c., was commenced.

March 22, 1838.

FRANCIS BAILY, Esq., V.P. and Treas., in the Chair.

A paper was read, entitled, "Description of a new Tide-Gauge, constructed by T. G. Bunt, and erected on the Eastern bank of the River Avon, in front of the Hotwell House, Bristol, in 1837." Communicated by the Rev. William Whewell, M.A., F.R.S.

The principal parts of the machine here described, are an eight-day clock, which turns a vertical cylinder, revolving once in twenty-four hours; a wheel, to which an alternate motion is communicated by a float rising and falling with the tide, and connected by a wire with the wheel which is kept constantly strained by a counterpoise; and a small drum on the same axis with the wheel, which by a suspending wire communicates one 18th of the vertical motion of the float to a bar carrying a pencil which marks a curve on the cylinder, or on a sheet of paper wrapped round it, exhibiting the rise and fall of the tide at each moment of time. The details of the mechanism, illustrated by drawings, occupy the whole of this paper.

A paper was also read, entitled, "On the Régar or Black Cotton Soil of India," by Capt. Newbold, Aide-de-Camp to Brigadier-Ge-

neral Wilson. Communicated by S. H. Christie, Esq., M.A., Sec. R.S.

The author states that the Régar of India is found, by chemical analysis, to consist of silica, in a minute state of division, together with lime, alumina, oxide of iron, and minute portions of vegetable and animal *débris*. Hence it is usually considered as having been formed by the disintegration of trap rocks: the author, however, after examining its numerous trap dykes traversing the formation of the ceded districts, which he found invariably to decompose into a ferruginous red soil, perfectly distinct from the stratum of black régar through which the trap protrudes, was led to regard this opinion of its origin as erroneous: and from the circumstance of its forming an extensive stratum of soil covering a large portion of the peninsula of India, he believes it to be a sedimentary deposit from waters in a state of repose.

Specimens of basaltic trap and of the Régar soil were transmitted to the Society by the author, for the purpose of analysis.

The reading of a paper, entitled, "Experimental Researches in Electricity," Thirteenth Series, by Michael Faraday, Esq,, D.C.L., F.R.S., &c., was resumed but not concluded.

March 29, 1838.

JOHN GEORGE CHILDREN, Esq., V.P., in the Chair.

Simon MacGillivray, Esq., was elected a Fellow of the Society.

The reading of a paper, entitled, "Experimental Researches in Electricity," Thirteenth Series, by Michael Faraday, Esq., D.C.L., F.R.S., was resumed but not concluded.

April 5, 1838.

FRANCIS BAILY, Esq., V.P. and Treas., in the Chair.

John Hardwick, John Macneill, and Edward William Tuson, Esqs., were elected Fellows of the Society.

The reading of a paper, entitled, "Experimental Researches in Electricity," Thirteenth Series, by Michael Faraday, Esq., D.C.L., F.R.S., was resumed and concluded.

The author, in this paper, pursues the inquiry into the general differences observable in the luminous phenomena of the electric discharge, according as they proceed from bodies in the positive or the negative states, with a view to discover the cause of those differences. For the convenience of description he employs the term *inductric*, to designate those bodies from which the induction originates, and *inducteous* to denote those whose electric state is disturbed by this inductive action. He finds that an electric spark, passing from a small ball, rendered positively *inducteous*, to another ball of larger diameter, is considerably longer than when the same